INTERNAL WORKING DOCUMENT No. 86:06

The Effects of Manual Plantation Cleaning II

(1985 Update)

January 1986

forests mines energy / forêts mines énergie

Department of Forests, Mines and Energy

Timber Management Branch

UPDATE

The Timber Management Branch of the New Brunswick Department of Forests, Mines and Energy initiated trials in the fall of 1982 and the summer and fall of 1983 to test the feasibility of motor-manually cleaning plantations to control undesirable species. Previous DFME reports Internal Working Documents have described the methods used, compared costs and reported on initial response of the vegetation (Plantation Tending Trials 1982, New Brunswick Plantation Cleaning Trials 1981, 1982, 1983 and The Effects of Manual Plantation Cleaning). This report summarizes vegetation measurements on the areas in the fall of 1985. Three areas were not remeasured because they had been herbicided in the late summer of 1984. For a description of the methods used see "The Effects of Manual Plantation Cleaning".

Table 1 summarizes the result of the measurements. Cleaning did not have a significant effect on the height of the planted trees. The only differences between the cleaned areas and the control areas that were statistically significant were:

1) Lower density and shorter average height of natural softwoods in the cleaned areas,
2) Hardwoods were shorter in the cleaned areas,
3) Raspberries were denser in the cleaned areas.

For the factors measured there was no difference between radius and complete cleaning or between summer and fall cleaning.

In the previous report "The Effects of Manual Plantation Cleaning" an increase in the growth of the planted trees was reported. The increased growth seems to have been a short term phenomenon since it was not detected in this survey of the same areas one year later. The lack of sustained response of the planted trees is a major concern. It may be that the rapid regrowth of vegetation again creates competition which restricts growth and would necessitate another cleaning. This would mean manual cleaning is an expensive way to get a plantation "free-to-grow". In 1985 none of the cleaned plantations met the "free-to-grow" criteria as outlined in the "New Brunswick Forest Management Manual".

Manual plantation cleaning does not seem to be a feasible method of controlling dense hardwood and raspberry competition in young softwood plantations. The problem of rapid regrowth of competition must be overcome before it can be considered a cost effective silviculture tool.

The plantations in this study should be remeasured again in their 5th year to substantiate the comments above.

Additional studies should be carried out in plantations with lower competition densities and in particular low levels of raspberry.

Table 1. Summary of fall 1985 measurements of plantations cleaned in 1982 and 1983.' Density and height of natural regerenation was measured within 60 cm. of the planted trees.

Location	Plantation Number and Year Planted	Species Planted	Time Cleaned	Method	Planted Trees Height (cm)	Natural Softwood Density Stems/ha	Natural Softwood Height (cm)	Natural Hardwood Density Stems/ha	Natural Hardwood Height (cm)	Raspberry Density Stems/ha	Raspberry Height (cm)
Anderson Rd.	TP-42-78	bS	Oct. 1982	Radius	93	0	-	25 000	101	63 000	83
			Control		97	1 200	189	24 000	184	40 000	80
Browns Mtn.	P-40-81	wS	Oct. 1982	Raduis	51	0	-	17 000	127	79 000	100
			Control		55	0	-	27 000	127	59 000	84
Dinnen Woods	TP-54-81	bS	Oct. 1982	Radius	60	3 500	67	24 000	124	80 000	79
			No Control	Available							
Biggar Bk.	TP-59-79	bS	July 1983	Radius	123	2 600	100	8 800	100	100 000	79
			Oct. 1983	Raduis	136	0	-	44 000	116	44 000	69
			July 1983	Complete	118	1 100	12	9 400	120	85 000	82
			Oct. 1983	Complete	148	2 900	42	18 000	109	80 000	78
			Control		127	5 300	217	8 600	167	48 000	73
Brown Rd.	TP-12-80	bS	July 1983	Radius	88	2 900	51	8 800	80	130 000	73
			Oct. 1983	Radius	78	0	-	44 000	107	91 000	92
			July 1983	Complete	87	2 200	120	6 100	62	130 000	74
			Oct. 1983	Complete	69	1 600	54	27 000	114	100 000	106
			Control		75	3 000	158	26 000	131	91 000	83
Marrtown	TP-20-82	jP	July 1983	Radius	48	0	-	47 000	70	3 400	76
			Oct. 1983	Radius	40	0	-	67 000	72	700	54
			July 1983	Complete	52	0	-	49 000	66	700	57
			Oct. 1983	Complete	49	0	-	97 000	70	0	-
			Control		42	200	41	82 000	89	1 400	71
Point Wolfe	P-16-80	wS	Fall 1983	Radius	80	500	75	73 000	100	174 000	83
			Control		84	0	-	47 000	130	141 000	94
Caribou Bk	P-11-78	bS	Fall 1983	Radius	117	400	90	31 000	102	60 000	88
	FP- 4-81)	bS	Fall 1983		40						
	FP- 3-82)										
	P-11-78		Control		112	2 100	118	27 000	151	47 000	84
	FP- 4-81)		Control		40						
	FP- 3-82)										